

1 The invention having been described, I claim

2 1. A motor run-time totalizer, responsive to the rotation of an associated
3 motor, having a rotor, to indicate the amount of time the rotor has been rotating,
4 the apparatus comprising:

5 a) a housing arranged for attachment to the rotor

6 b) a timer, in said housing, that will indicate the total accumulated
7 run time that occurs while it is turned on;

8 c) sensor means, in said housing, to sense the rotation of the rotor and
9 to turn the timer on when the motor is running and turn it off when the
10 motor is not running.

11 2. The apparatus of claim 1 wherein said timer is a spring powered
12 chronograph.

13 3. The apparatus of claim 1 wherein said sensor means is a pendulum free
14 to rotate about the axis of the rotor, the rotation of the pendulum relative to the
15 rotor axis being sensed to start and stop said timer.

16 4. The apparatus of claim 3 wherein the rotation of the pendulum moves
17 a movement conducting means to start and stop the time accumulation by said
18 timer.

19 5. The apparatus of claim 1 wherein said sensor means is a movable mass
20 arrangement, said mass situated to move away from the rotor axis in response
21 to rotation of said rotor to sense the rotation of said motor.

1 6. The apparatus of claim 1 wherein said motor involves a rotor situated
2 to rotate about an axis which orbits the motor body centerline.

1 7. The apparatus of claim 1 wherein the rotor axis orbits the centerline of
2 said motor, said sensor being a pendulum free to rotate about said axis, power
3 to drive said timer being extracted from the rotation of said pendulum relative
4 to said axis.

1 8. The apparatus of claim 7 wherein said power to drive said timer is
2 delivered to a spring arranged to drive said timer.

1 9. The apparatus of claim 7 wherein said power to drive said timer is
2 delivered to said timer through a slip clutch arranged such that when the
3 pendulum ceases to deliver said power the timer stops running.

1 10. The apparatus of claim 1 wherein said timer is battery powered, said
2 sensor arranged to switch the timer on and off.

1 11. A motor run-time totalizer, responsive to the rotation of an
2 associated progressing cavity positive displacement motor, having a rotor with
3 an axis that orbits the motor centerline, to indicate the amount of time the
4 motor has been rotating, the apparatus comprising:

5 a) a housing with means for attachment to said rotor

6 b) a timer that will indicate the total accumulated run time that occurs
7 while it is turned on;

8 c) sensor means to sense the rotation of the motor by sensing the
9 orbiting of the rotor axis around the motor centerline and to turn the
10 timer on when the motor is running and turn it off when the motor is
11 not running.

12. The apparatus of claim 11 wherein said timer is a spring powered
13 chronograph.

13. The apparatus of claim 11 wherein said sensor means is a movable
14 mass arrangement, said mass situated to move away from the motor axis in
15 response to rotation of said motor to sense the rotation of said motor.

1 14. The apparatus of claim 12 wherein said power to drive said timer is
2 delivered to a spring arranged to drive said timer.

1 15. The apparatus of claim 12 wherein said power to drive said timer is
2 delivered to said timer through a slip clutch arranged such that when the
3 pendulum ceases to deliver said power the timer stops running.

1 16. The apparatus of claim 11 wherein said timer is battery powered, said
2 sensor arranged to switch the timer on and off.